

ABSTRACT OF THE INVENTION

A dispersion compensating optical fiber for use in a high data rate telecommunications span or link. The dispersion compensating optical fiber in accordance with the invention provides excellent compensation of total dispersion over a range of wavelengths (e.g., 1527-1567 nm), thus minimizing signal distortion in wavelength division multiplexed systems. The dispersion compensating fiber has a refractive index profile with a central core segment having an inner peak with a $\Delta_i\%$, an outer peak with $\Delta_1\%$, and a trough with a $\Delta_t\%$ less than both $\Delta_i\%$ and $\Delta_1\%$, a moat segment with a $\Delta_2\%$, and a ring segment with a $\Delta_3\%$. Preferably, $\Delta_i\%$ and $\Delta_3\%$ are greater than $\Delta_2\%$. Also disclosed is an optical transmission span having residual dispersion less than ± 25 ps/km for 100 km of transmission fiber over a wavelength band of 1527-1567 nm.